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MEMORANDUM

To: Members of the Subcommittee on National Security, Emerging Threats, and International Relations

From: Joseph F. McGowan

Subject: Briefing Memorandum for the hearing, *Counterterrorism Technology: Picking Winners and Losers,* scheduled for September 29, 2003, at 2:00 p.m. in Room 2154, Rayburn House Office Building.

PURPOSE OF THE HEARING

The purpose of the hearing is to examine the extent to which federal agencies are succeeding in prioritizing, promoting, assessing and funding cutting-edge sciences and technologies designed to counter terrorism.

HEARING ISSUE

How effective and efficient is the Technical Support Working Group (TSWG) in identifying and prioritizing cutting-edge homeland security technologies?

BACKGROUND

In the post September 11th push for rapid development of technical solutions to address the threat of terrorism at home, the Technical Support Working Group (TSWG), jointly under the direction of the departments of State and Defense, is expected to play an important role in identifying, assessing, and funding the rapid prototyping of many worthwhile counter terrorism technologies. Effective cutting-edge products and technology-based solutions are one key in successfully fighting the war on terrorism. Many of the inventors and developers of these products are small and middle-sized companies founded and organized around new ideas, or willing to take some risks in the pursuit of new technologies and products.

Technical Support Working Group (TSWG)

Although not a very well known organization, TSWG is the U.S. national forum that identifies, prioritizes, and coordinates interagency and international research and development requirements for combating terrorism. It provides a way for technologies to be developed when a single agency cannot invest sufficiently in a technology that benefits multiple agencies. **(Web Resource 1, p.8)** The vast amount of homeland security research and development activities (and their funding) continue to be handled by those individual agencies interested in solutions to their own needs and missions **(Attachment 1, pp.1-6).** TSWG generally focuses on products and services needed by many agencies.

The origins of TSWG were as part of the Interdepartmental Group on Terrorism (IG/T), chaired by the Department of State (State), and created by *National Security Decision Directive 30* on April 10, 1982. The IG/T was assigned responsibility for the development of overall U.S. policy on terrorism, including prior planning for terrorist incidents. **(Web Resource 2, p.2)** State was to be the lead agency for international terrorist incidents taking place outside U.S. territory. The Department of Justice and the FBI were assigned as the lead agencies for terrorist incidents taking place within U.S. territory, with the FAA for highjackings within the special jurisdiction of the United States. **(Web Resource 2, p.1)**

Following the 1983 truck bomb attack on the U.S. Marine Corps Barracks in Beirut, Lebanon, which resulted in killing 241 service members, TSWG was founded as a subgroup under IG/T. Government was looking for new methods to detect and deter terrorist incidents. Today, TSWG develops needed counterterrorism technologies as a stand-alone working group. **(Web Resource 3)**

TSWG Structure

In many respects, TSWG is not a typical government organization. It has a relatively small staff located within the Department of Defense (DoD) and receives policy direction from State, but is substantially augmented by representatives from other government agencies who are members and help to evaluate the technical proposals submitted to TSWG. Nearly all TSWG staff are allocated among its Subgroups or in TSWG program management.

To direct its technical analysis and selection efforts most effectively, TSWG is organized into nine functional area subgroups. The subgroups are chaired or co-chaired by representatives from various interested federal agencies. Chairs are assigned based on the specific interests of their agencies in the functional areas, and the membership in each consists of representatives from agencies with a knowledge of and interest in the technical area and the resulting proposals and products. **(Web Resource 2, p.2)**

The nine functional area subgroups of TSWG are:

1. Chemical, Biological, Radiological, and Nuclear Countermeasures
2. Improvised Device Defeat
3. Investigative Support, and Forensics
4. Physical Security Technology
5. Tactical Operations Support
6. Explosives Detection
7. Infrastructure Protection
8. Personnel Protection
9. Surveillance, Collection, and Operations Support

Participation in TSWG is open to all defense organizations (such as the Biological Chemical Joint Operations Center, the Air Force Surgeon General, the Tank-Automotive and Armaments Command, Defense Intelligence, and Special Operations Command), federal departments, and agencies. Currently, over 80 organizations **(Web Resource 4, p.1)** in nine departments and numerous agencies across the federal government participate in TSWG through representatives. **(Attachment 2)**

As a result of a FY1993 Senate initiative for joint counterterrorism R&D efforts, TSWG works jointly with both NATO and non-NATO allies. Through

separate bilateral agreements, TSWG also cooperates in sharing technology information with several foreign governments. These include Israel and the United Kingdom, (both of which have decades of front-line experience with terrorists), and Canada, whose long border with us could be a pathway for terrorists to enter the U.S. **(Attachment 2, p.1)** According to State, discussions are currently underway to include Australia, whose citizens recently were victimized in a terrorism attack in that region.

TSWG Funding

TSWG's core funds are derived from DoD's Combating Terrorism Technology Support (CTTS) Program and the Department of State. However, other departments and agencies contribute additional funds and share the cost of selected projects. More recently, a growing share of TSWG funding comes from The Department of Homeland Security (DHS). Core funding from DoD and State in the Administration's FY2003 budget request for TSWG is $49 million. **(Web Resource 5, p.15)** Total TSWG funding for FY 2003 is about $183 million. **(Attachment 3, p.1)** This total includes core funding, congressional adds, and contributions from other agencies. For FY2004, TSWG total administrative cost will be about $12 million (8%) of TSWG funds. **(Attachment 3, p.2)**

Total funding for TSWG has greatly increased since its inception. As recently as FY1992, TSWG was receiving only about $8 million. Ten year later, by FY2002, funding had increased to approximately $111 million. **(Web Resource 4, p.3)** TSWG funding further increased for FY2003. The increased funding reflects the concern over terrorist activity and the recognized need to accelerate the development of technology to effectively address the threat. **(Web Resource 4, p.3)**

TSWG Operations in a Post September 11th Environment

Following the events of September 11, there have been greatly heightened concerns about international terrorist attacks and overall homeland security. In response, TSWG increased its annual activities in FY2002.

The solicitation of proposals begins in January with an annual meeting of the subgroup users. At this time, the users can submit and discuss counterterrorism technology needs and develop "wish lists" through discussion and consensus building. These needs and desired technologies form the basis for TSWG Broad Agency Announcements (BAAs), which enable the government to solicit

innovative research and development solutions from industry, academia, and government laboratories.

The BAA contains requirements, generally divided into nine previously listed broad areas, which have been selected to receive proposals. A BAA is advertised through the TSWG program website [www.bids.tswg.gov] and through the Federal Business Opportunities website [www.fedbizopps.gov]. For those applicants who use the TSWG website to provide a proposal, a secure application, called the BAA Information Delivery System (BIDS) is used to ensure control of bidder proprietary data.

The TSWG application system has been designed to be relatively quick and simple, requiring an initial submission of a one-page summary proposal. This one-page summary must contain four items, including a photo or sketch; a brief description of how the device will be used; the proposed approach to meet the need listed in the BAA; and the estimated cost. Because these one-page summaries contain four sections, they are called Quad Charts.

Interested members of the TSWG user community can remotely evaluate Quad Charts submissions through a secure website. After the interested TSWG user community has evaluated a Quad Chart submission, a brief white paper is requested from those bidders determined to have excellent Quad Chart submissions. After another round of review, a full Request for Proposal (RFP) is issued to the companies remaining in the selection process. The final round of review occurs and contracts are awarded to those proposals deemed worthy of funding. TSWG reports nearly all companies that are invited to submit final round proposals receive funding.

The TSWG user community evaluates submissions by whether the basic requirements are met; the probable technical performance of the submission; the past performance of the bidder; whether the delivery schedule is complete and achievable; and the reasonableness of the cost.

The TSWG 2002 Review report, the most recent available, identifies several of the post-September 11 actions taken in FY2002 to increase the tempo of operations and range of activities. For example:

- In addition to its normally scheduled BAAs, the TSWG issued a BAA for the Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics) that resulted in 12,500 submissions from industry, academia,

government, and the national laboratories (which conduct engineering and research for the government in areas in which the capability has not always been readily available within the federal government or the private sector). Approximately 60 of those project proposals are being funded at the approximately $50 million.

- At the request of the White House Office of Science and Technology Policy, the TSWG reviewed and evaluated over 200 technical proposals submitted to the Office of Homeland Security and funded or referred the promising proposals to other agencies for funding consideration.
- The TSWG engaged the National Academies of Science to review and begin addressing long-term technology needs for combating terrorism. **(Attachment 2, p.i)**

In addition, the creation of DHS is beginning to provide a major additional stream of funds for projects solicited through TSWG proposals. The recently adopted FY2004 Homeland Security Appropriations will provide $75 million to fund solicitations through TSWG. This would be eight percent of the DHS Science and Technology Directorate budget.

Department of Homeland Security Involvement with TSWG

The Department of Homeland Security, established 6 months ago, has now joined TSWG as a member agency. (Prior to the creation of DHS, many of the DHS agencies had already been participating on TSWG subgroups.) This pairing of DHS and TSWG has already resulted in one BAA, thereby enabling TSWG to serve as the technology clearinghouse envisioned by DHS authorizing legislation. (Section 313 of P.L. 107-296, "The Homeland Security Act of 2002.") **(Attachment 4)**

The latest BAA released by TSWG, on behalf of DHS, opened to proposals on May 14, 2003 and closed 30 days later on June 13, 2003. That BAA solicited a range of 50 items or requirements for technology development from seven of the nine TSWG functional subgroups. More than half (27) of the requirements are in the area of chemical, biological, radiological, and nuclear countermeasures. The 50 requirements for technology from the seven subgroups were the divided as follows:

1. CB – Chemical, Biological, Radiological, and Nuclear Countermeasures (27 requirements)

2. ED – Explosives Detection (2 requirements)
3. IDD – Improvised Devise Defeat (1 requirement)
4. IP – Infrastructure Protection (6 requirements)
5. IS – Investigative Support and Forensics (7 requirements)
6. PP – Personnel Protection (1 requirement)
7. PS – Physical Security (6 requirements)

The types of proposals solicited included low-cost chemical and biological decontamination systems, efficient detection of high-Z materials in cargo, remote detection of large vehicle bombs, secure video teleconferencing and document transfer, sea mine detection system, and improved mass transit surveillance and early warning system, among others.

This BAA drew approximately 3,300 proposals, of which only 200 white papers were requested. The final evaluation stage, the request for proposal, has yet to be announced.

DHS is providing an increasing proportion of TSWG funding and may require greater amounts of TSWG resources in the future. The FY2004 Homeland Security Appropriations conference report would provide $75 million for rapid prototyping projects solicited in cooperation with TSWG, out of a total of $918 million that would be appropriated for the DHS Directorate of Science and Technology. Within the Sciences and Technology Directorate, the Homeland Security Advanced Projects Research Agency (HSARPA) is modeled after its DoD counterpart, the Defense Advanced Projects Research Agency (DARPA), but will attempt to maintain a much shorter developmental timeline for homeland security projects, rather than many of the longer-term, usually multi-year Defense Department-related research projects funded by DARPA. **(Attachment 5)**

DISCUSSION OF THE HEARING ISSUES

1. How effective and efficient is TSWG in identifying and prioritizing cutting-edge homeland security technologies?

The September 11, 2001 attacks against the United States have been a watershed event in exposing the relative vulnerability of the nation's infrastructure, economy and citizenry to attacks by terrorists. However, these attacks also have served as a catalyst in speeding the development of effective systems and measures to prevent, detect, and deter future incidents. Although science and technology are by no means the only method to counter terrorism, they can be invaluable elements, especially within a free and open society, where the rapid movement of people and goods is vital to the nation's social, political and economic well being.

U.S. leadership and innovation in science and technology has long been seen as a critically important tool in enabling America to prevail against enemies. During World War II, this country mobilized science and technology expertise and resources to become the arsenal of the free world, crack the atom, and achieve a decisive victory. The launch of Sputnik once again drove the U.S. science and industry sectors to mobilize, leading to a man on the moon less than a dozen years later. Today, science is rallying its resources and research capacity to make rapid progress in understanding and controlling emerging infectious diseases and environmental problems.

When sufficiently organized, challenged, led and funded, American science and technology can be expected to continue to rally to meet the nation's threats and challenges. Private companies are a key source of new ideas and innovative technologies that would be valuable in combating the threat of terrorism. **(Attachment 6, p.3)** This private-public symbiosis can be a win-win situation, providing the best, cutting-edge ideas and technologies to the war on terrorism, as well as important business opportunities to companies selected to develop and provide the needed products and services.

The current mechanism in TSWG to develop priorities for BAAs is to solicit the member subgroups for their needs and priorities. Not all of the members possess a homeland security focus, and as such, the priorities for TSWG BAAs represent a broader set of priorities than that of DHS. While this broadening of perspective may lead to increased synergy between funding agencies and the transition of already established solutions from one agency to another, it may also lead to homeland security needs not receiving priority attention.

As DHS joins TSWG as a member, it is unclear whether the TSWG process is best suited for what may become expansive homeland security technology solicitations. The Homeland Security Act of 2002 required the formation of a technology clearinghouse, a role TSWG currently performs, but it may be that a clearinghouse integral to DHS will provide a more streamlined approach to homeland security technology development.

With a priority-setting process that begins each January, strategic development and planning for new homeland security technologies may prove difficult. While development of short term technologies through TSWG may meet the rapid prototyping needs of DHS, use of TSWG as the sole developer of homeland security technologies may prove to provide too near term a development horizon to address some fundamental homeland security technology needs.

The majority of TSWG proposals are submitted to BAAs under the "unspecified requirement" category, an all-encompassing category which serves as a catch-all for technologies which may be of use but do not address a specific requirement in the BAA. Most of these projects are not funded. Given the fact that proposals responsive to specified BAA requirements are numerous and funding for them is relatively limited, TSWG places emphasis on funding proposals for which its customers have stated a specific need. Since DHS has received many unsolicited proposals regarding development of homeland security technology products and services, the TSWG BAA process, or even the TSWG style of handling BAA submissions, may not serve to provide adequate and accurate screening and review of these unsolicited proposals.

TSWG is not well known outside of government circles, and is not a major source of research and development funding activities. The low profile of TSWG may provide a barrier to companies searching for assistance in developing a homeland security technology or product.

As priorities for TSWG BAAs are set by consensus agreement between the member agencies, there may be a tendency towards products that will meet the needs of multiple agencies rather than a single agency. While this may provide the most cost-effective solutions to common problems, it also may not address pressing homeland security needs for which solutions need to be located in the near term. It raises a question as to whether TSWG's priority setting process will be able to meet the priority needs of DHS, in view of the fact that DHS is only one of many member agencies.

Many unsolicited proposals are received by DHS and others from companies with a homeland security product. Proposals for rapid prototyping would presumably be funded through the TSWG process. In the current procedure, such unsolicited proposals would be considered as applications to current BAAs under the "unspecified requirement" category. Only one percent of the proposals that apply to TSWG under the "unspecified requirement" category are funded. This raises a concern as to whether this process and mechanism provides sufficient access and funding for those companies with potential homeland security products.

Witnesses

Mr. Michael A. Jakub, Director of Technical Programs, Office of the Coordinator for Counterterrorism, Department of State, is expected to testify about the origin and organization of TSWG, and the nature of working relationships between DHS, State, DoD and its other customers.

Mr. Edward McCallum, Director, Combating Terrorism Technology Support Office, Department of Defense, is expected to testify about the operation of TSWG, and its relationships to the Departments of Defense, Homeland Security, and its other customers.

Dr. David Bolka, Director of the Homeland Security Advanced Research Projects Agency (HSARPA), Department of Homeland Security, is expected to testify about the working relationship between DHS and TSWG, the way TSWG is organized and operates vis-à-vis DHS, whether any evolution in the DHS-TSWG relationship is anticipated, and how the increased operational capability of the Homeland Security Advanced Research Project Agency (HSARPA) may influence future DHS-TSWG relationships.

Dr. Gordhan Patel, President, JP Laboratories, Middlesex, NJ, is expected to testify about his positive experiences operating what was at the time a two-man company which has developed a very sensitive, credit card-sized Dosimeter badge that could be worn around the neck by first responders and others. The Dosimeter can simply and accurately measure exposure to radioactive materials, and can be purchased for just $3 each. Dr. Patel had submitted his idea to TSWG as an unspecified proposal, which TSWG funded.

Mr. Jack Sarwicki, Director of Business Development, GEOMET Technologies, LLC, Germantown, MD, is expected to testify about his various experiences in dealing with the TSWG process.

Mr. Lee F. Sword, Program Manager, Military Systems Division, i Robot Corporation, Burlington, MA, is expected to testify about the interaction of i Robot Corporation with the BAA process, the funded development, and opinions about potential process improvements.

Mr. Richard W. Sesnewicz, Vice President, Business Development, American Science and Engineering, Inc. Billerica, MA, is expected to testify about his experiences in working with TSWG.

Mr. Bruce deGrazia, Chairman, Homeland Security Industries Association (HSIA), Washington, DC, will discuss the experiences and frustrations of some of its 400 corporate members in marketing technology proposals to government. Mr. deGrazia's testimony is expected to suggest a number of ideas HSIA members believe can improve the process TSWG uses to identify and assess technology.

Mr. Kenneth P. Ducey, President, Markland Technologies, Inc., Ridgefield, CT, is expected to testify about the experiences and frustrations of his company in attempting to market a system that utilizes a net to halt a vehicle traveling 60 mph.

Mr. Laurence D. Borey, Vice President, Federal Government Relations, HDR, Inc., Orlando, FL. HDR is an architectural engineering and design firm with 3,200 employees who are involved with counter terrorism and communications technology, as well as security consulting and vulnerability assessments. Mr. Borey is expected to testify about the experiences of HDR in working with TSWG.

ATTACHMENTS

1. CRS Report for Congress, "Homeland Security Extramural R&D Funding Opportunities in Federal Agencies." Order Code RS 21617, September 10, 2003.

2. TSWG 2002 Review (Available for staff in the Subcommittee)

3. TSWG budget document provided to CRS on May 27, 2003.

4. Excerpt from P.L. 107-296, "The Homeland Security Act of 2002." Sect. 313. (Technology Clearinghouse to Encourage and Support Innovative Solutions to Enhance Homeland Security.)

5. CRS Report for Congress, "Homeland Security and Counterterrorism Research and Development: Funding, Organization and Oversight." Order Code RS21270, July 21, 2003.
and
CRS Report for Congress, "Research and Development in the Department of Homeland Security." Order Code RL31914, Updated June 20, 2003.

6. CRS Report for Congress, "Homeland Security: Federal Assistance Funding and Business Opportunities." Order Code RL32036, Updated September 12, 2003.

WEB RESOURCES

1. CRS Report for Congress, "Federal Research and Development Organization, Policy, and Funding for Counterterrorism." Order Code RL31576, September 19, 2002. (http://www.congress.gov/erp/rl/pdf/RL31576.pdf)

2. National Security Decision Directive 30, *Managing Terrorist Incidents*, April 30, 1982. (http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB55/nsdd30.pdf)

3. Technical Support Working Group (TSWG background, mission, charter, and organization) (http://www.dod.mil/news/Nov2001/d20011129tswg.pdf)

4. Technical Support Working Group 2002 Overview. (http://tswg.gov/tswg/about/tswg_2002_annual_overview.pdf)

5. CRS Issue Brief , "Terrorism, the Future, and U.S. Foreign Policy." Order Code IB95112, March 6, 2003.

Witness List

Mr. Michael A. Jakub
Director of Technical Programs
Office of the Coordinator for Counterterrorism
Department of State

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Director, Combating Terrorism Technology Support Office
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